

HISTOPATHOLOGICAL ANALYSIS OF VERRUCOUS CARCINOMA WITH PAS STAIN TRANSFORMING INTO INVASIVE SQUAMOUS CELL CARCINOMA

Arpita Kabiraj^{1*}, Tanya Khaitan², Preeti Tomar Bhattacharya³,
Soumyabrata Sarkar⁴, Rupam Sinha⁵, Arup K Ghosh⁶

¹Senior lecturer, ⁶Professor & Head, Department of Oral Pathology & Microbiology,
^{2,3}Senior lecturer, ⁴Reader, ⁵Professor and Head, Department of Oral Medicine & Radiology,
Haldia Institute of Dental Sciences and Research, West Bengal.

***Corresponding Author:**

E-mail: drarpita4u@yahoo.com

ABSTRACT

Ackerman's tumour commonly known as Verrucous carcinoma (VC) is a low grade variant of oral squamous cell carcinoma (OSCC). The oral cavity and larynx have been reported to be the commonest sites of involvement in the head and neck regions. VC is characterised with presence of minimal degree of dysplasia and biological aggressiveness, the principal etiological factor being tobacco usage. Its distinctive histopathological features make it exigent for diagnosis and build a close association between the clinician and the histopathologist. Hereby we report a rare case of verrucous carcinoma on the right buccal mucosa of a 48 year old male patient progressing into invasive squamous cell carcinoma.

Key words: Cellular pleomorphism; Squamous cell carcinoma; Verrucous carcinoma.

INTRODUCTION

Buschke and Lowenstein (1896 and 1925) described a penile lesion histologically analogous to benign condyloma acuminatum but behaved with a malignant approach. This tumour was described as giant condyloma acuminatum or the Buschke-Loewenstein tumour and was proposed to be the genital variant of verrucous carcinoma.¹

Lauren V Ackerman was the first to use the term "verrucous carcinoma" (VC) to describe an atypical variant of OSCC.² Carcinoma of the upper aero digestive tract is known as 'verrucous carcinoma', when it occurs on the genitalia it is known as 'condyloma acuminatum' and when on extremities 'carcinoma cuniculatum'. These neoplasms are essentially the same with slow growing, locally invasive and non-metastasizing behaviour.³ Among all the oral cancers, VC accounts to be approximately to be 7% in India. The common sites in the head and neck regions are oral cavity and larynx representing 2-9% and 2% in that order. They are thought to be locally aggressive, but with low inclination for regional as well as distant metastasis.^{4, 5, 6}

CASE REPORT

A 48 year old male patient reported with the chief complaint of a growth in the right buccal mucosa since 2 months. History revealed that the growth was pea nut sized initially which grew larger gradually to attain the present size. Patient gave a history of chronic tobacco chewing since 25 years.

On intraoral examination, an ulceroproliferative growth was found on the right buccal mucosa extending from the corner of the mouth to the third molar region measuring

approximately 9cm by 6cm in size. (Fig 1) The growth had ill defined margins adverted edges and the surface of the lesion appeared to be reddish pink in color with a corrugated appearance. On palpation, the lesion was found to be tender and in duration was present. The oral hygiene and periodontal status of the patient was found to be unsatisfactory. Therefore the patient was subjected to incision biopsy and the gross specimen was sent for histopathological examination.

The histopathologic photomicrograph revealed hyperplastic proliferated epithelium with elongated broad rete ridges into connective tissue stroma. Deposition of thick layer of parakeratin was found within the cleft-like spaces. The epithelial cells showed cellular atypia, increased mitotic activity, pleomorphism or hyperchromatism. (Fig. 2) The connective tissue stroma showed the presence of chronic inflammatory infiltrate. Periodic-acid Schiff (PAS) staining was performed to confirm the invasion of the tumour cells within the connective tissue matrix. PAS stained section revealed the presence of break in the basement membrane and numerous tumour cells within the connective tissue matrix. (Fig 3)

The histopathological features thus were suggestive of 'Squamous cell carcinoma arising within verrucous carcinoma'. The lesion was surgically excised under local anaesthesia and the patient was under follow up.



Fig. 1: Photograph shows exophytic growth with surface ulceration



Fig. 2: Photomicrograph (H & E stain) shows down growth of epithelium with cleft like spaces and parakeratin. Epithelial cells showed cellular atypia, increased mitotic activity, pleomorphism or hyperchromatism. (10X)

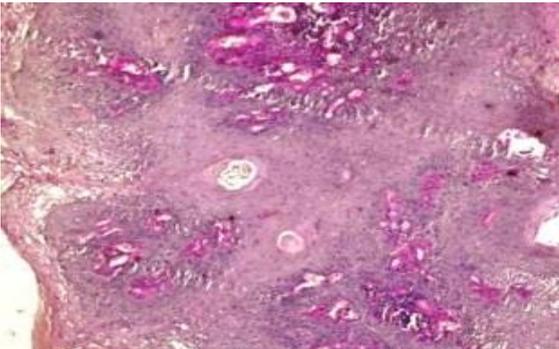


Fig. 3: Photomicrograph shows PAS stained section with the presence of break in the basement membrane and numerous tumour cells within the connective tissue matrix. (20X)

DISCUSSION

VC has a propensity to occur at any anatomic location throughout the body involving the upper aero digestive tract. The most common site of occurrence is the oral cavity, particularly affecting the buccal mucosa, gingiva, or larynx. This lesion mostly affects the elderly, usually in the 7th or 8th decade of life.⁷ In the present case, a 48 year old

patient gave a history of chronic tobacco usage which is different from the usual pattern.

VC accounts for 2 to 4.5% of all forms of oral squamous cell carcinoma and 37.7% of second primary tumour with male predominance affecting mainly the elderly. It is chiefly characterised by an infiltrating nature and majorly horizontal growth depicting good prognosis, rarely causing regional metastases.^{8,9}

The predisposing factors of VC is thought to be chronic exposure to ultraviolet radiation, prolonged use of tobacco, oncogenic viruses HPV16 & 18.⁵ VC is discrete in its slow growth and has an ability to become locally aggressive if not treated properly.⁶

The histopathological features of VC are unique which include hyperparakeratosis, acanthosis with formation of distended papilliferous projections and distinctive perilesional inflammatory infiltrate. There is minimal amount of cellular atypia and dysplastic features is infrequent. There can be occasional presence of mitotic and dyskeratotic cells at the base of the lesion.⁷ In the typical lesion the deeper portions are locally invasive and destructive, with the infiltrative margin composed of blunt, well demarcated, well differentiated squamous cells.¹⁰

VC can occasionally transform into squamous cell carcinoma (SCC). According to previous literature, very few cases of SCC arising within VC have been reported occurring in oral cavity, penis, vagina and skin with one case reported in each category respectively.¹¹ Microscopically, club-shaped fingers of hyperplastic epithelium gradually pushing rather than infiltrating into the deeper tissues is observed.¹² Go JY et al. (1998) reported a verrucous squamous cell carcinoma of the sinonasal tract in 67 year old male patient and observed the presence of multiple fragments of hyperkeratotic squamous epithelia with papillary formation and tumour cells with marked cytological atypia.¹³ Terada T (2005) reported a similar case of squamous cell carcinoma arising within verrucous carcinoma in an elderly female patient and found there was no invasion of verrucous carcinoma.¹¹ Shimizu A et al. (2006) also reported a similar case of verrucous carcinoma in a 56 year old male patient with lesion on the skin of the back transforming into invasive squamous cell carcinoma. Histological examination indicated that most of the lesion showed an exophytic growth of keratinocytes. Hyperkeratosis and acanthosis were accompanied by marked upward elongation of dermal papillae. Thicken edepidermis was composed of well-differentiated squamous cells which showed nuclear atypia and loss of polarity invaded the mid-dermis.¹² Histopathological features consistent with the above literature were also found in the present case report. The treatment of choice for the reported case is

surgical excision of the lesion with occasional follow up. Thus, it may not be uncommon for VC to eventually transform into invasive squamous cell carcinoma, causing occasional metastasis. Therefore, VC of the skin should be treated as an in situ carcinoma and carefully followed up.

REFERENCES

1. Kaushal N, Madan N. Verrucous carcinoma of the oral cavity: case report. *The Internet Journal of Geriatrics and Gerontology* 2011; 6(1).
2. Spiro RH. Verrucous carcinoma, then and now. *Am J Surg* 1998; 176: 393-8.
3. Singh K, Kalsotra P, Khajuria R, Manhas M. Verrucous carcinoma (Ackerman's tumour) of mobile tongue. *JK Science* 2004; 6(4): 220-2.
4. Indudharan R, Das PK, Thida T. Verrucous carcinoma of maxillary antrum. *Singapore Med J* 1996; 37: 559-61.
5. Padmavathy L, Rao LL, Ethirajan N, Gunasekaran K, Krishnaswamy B. Verrucous carcinoma- report on two cases. *Indian J Dermatol* 2009; 54: S68-70.
6. Walvekar RR, Chaukar DA, Deshpande MS, Pai PS, Chaturvedi P, Kakade A. Verrucous carcinoma of the oral cavity: A clinical and pathological study of 101 cases. *Oral Oncol.* 2009;45:47-51.
7. Stelow EB, Mills SE. Squamous cell variants of the upper aero digestive tract. *Am J Clin Pathol* 2005; 124(1): 96-109.
8. Zanini M, Wulkan C, Paschoal FM, Maciel MH, MachadoFilho CS. Verrucous carcinoma: a clinical histopathologic variant of squamous cell carcinoma. *An Bras Dermatol* 2004; 79(5): 619-21.
9. Kalsotra P, Manhas M, Sood R. Verrucous carcinoma of hard palate. *JK Science* 2000; 2(1): 52-4.
10. Varshney S, Singh J, Saxena RK, Kaushal A, Pathak VP. Verrucous carcinoma of larynx. *Indian Journal of Otolaryngology and Head and Neck Surgery* 2004; 56(1): 54-6.
11. Terada T. Squamous cell carcinoma arising within verrucous carcinoma of the oral cavity: a case report. *Int J Clin Exp Pathol* 2012; 5(4): 363-6.
12. Shimizu A, Tamura A, Ishikawa O. Invasive squamous cell carcinoma arising from verrucous carcinoma. *Eur J Dermatol* 2006; 16(4): 439-42.
13. Go JY, Oh YL, Ko YH. Hybrid verrucous squamous cell carcinoma of sinonasal tract: a case report. *J Korean Med Sci* 1998; 13: 662-4.